

Application No.:10/728,135

Docket No.:JCLA12578

REMARKS**Present Status of the Application**

The office action rejected claims 1 and 11 under 35 U.S.C 112, first paragraph, as failing to comply with the written description requirement. The Office Action rejected claims 1, 3-4, 6-8, 10-15 under 35 U.S.C. 103(a), as being unpatentable over Huang (U.S. Patent No. 6,939,664) in view of Yu et al. (U.S. Patent No. 5,282,066). Applicant has amended claim 11 and added claims 14-15 to more explicitly describe the claimed invention.

Discussion of the 112, first paragraph rejection

The office action rejected claims 1 and 11 under 35 U.S.C 112, first paragraph, as failing to comply with the written description requirement.

Applicants have deleted "wherein the protective layer is made of an acid-sensitive and radiation unsensitive material" to overcome the rejection.

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Discussions of the 103 rejections

The Office Action rejected claims 1, 3-4, 6-8, 10-15 under 35 U.S.C. 103(a), as being unpatentable over Huang (U.S. Patent No. 6,939,664) in view of Yu et al. (U.S. Patent No. 5,282,066). Applicant respectfully traverses the rejections for at least the reasons set forth below.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"See M.P.E.P. 2143, Latest Revision August 2006".

The office action stated Huang does not disclose forming a protective layer on the resist layer and/or the acid supplying layer, but Yu teaches forming a protective layer on a photoresist or an acid-supplying layer (col. 6, lines 15-20). However, applicant respectfully submits the

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barrier layer (protective layer) of the Yu reference is different from the protective layer as claims 1, 7 and 11 recite and the field of the Yu reference is much different from that of the present invention.

First, in the Yu reference, the disclosed method is used for recording data. In details, the photo-sensitive recording film is recorded with utilizing reflective index immersion oils to form a holographic recording film and then performing a UV exposure step. In particular, the recorded film does not to be removed. The recorded film must be removed by peeling the whole film. However, the method of the present application is used for patterning a photoresist layer. In details, in the present invention, the photoresist layer is patterned with an immersion exposure, a baking step and a development step, which utilizing acid to define to the photoresist layer, and therefore a portion of the photresist layer would be removed with a development step.

Moreover, in the immersion lithography process of the present invention, the photoresist layer is immersed in de-ionic (DI) water which is well known to the people skilled in the art. However, Yu teaches the recording photosensitive film is immersed in an oil.

In addition, in the Yu reference the UV light of 365 nm is used to record data in the recording film. The UV light of 365 nm can not define a photoresist layer to have a line width smaller than 65 nm. However, the immersion exposure step used in the present application has a wavelength about 193 nm which is well known to the people skilled in the art, the exposure step using 193 nm light source can define a pattern having a line width smaller than 65 nm. The immersion lithography process of the invention can improve the traditional immersion lithography process.

Therefore, applicant respectfully submits the recording method of the Yu reference can

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not be associated with an immersion lithographic process. There is not any suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.

Applicant also submits Yu and Huang fail to teach “performing a baking step to alter polarity of the protective layer on the exposed portion of the photoresist layer by acid produced in the exposed portions of the photoresist layer in the immersion exposure step” as claim 1 recites. Applicant respectfully submits Yu and Huang also fail to teach “the protective layer is comprised of a material having a property of that when reacting with an acid, its polarity would be altered” as claim 11 recites.

For at least the foregoing reasons, the method and the field of the Yu reference are much different from that of the immersion lithographic process of the present application. Applicant respectfully submits that independent claims 1, 7 and 11 patently define over the prior art references, and should be allowed. For at least the same reasons, dependent claims 3-4, 6, 8, 10, 12-15 patently define over the prior art as a matter of law, for at least the reason that these dependent claims contain all features of their respective independent claim.

Newly added claims

Applicant has also newly added claims 16 and 17 which comprise the limitation of the protective layer on the exposed portion of the photoresist layer has a polarity the same to that of the exposed portion of the photoresist layer after the baking step. Applicant respectfully submits Yu and Huang do not teach the limitation.

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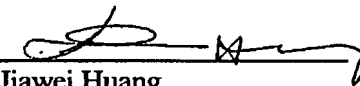
CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a conference would be of value in expediting the prosecution of this application, he is cordially invited to telephone the undersigned counsel to arrange for such a conference.

Date: 6-12-2007

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Respectfully submitted,
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